XIII. *A Letter from Mr.* James Sherwood, *Surgeon, to* Martin Folkes, *Esq*; Preſident *of the* Royal Society, *concerning the minute* Eels *in* Paſte *being viviparous.*

SIR,

Read Feb. 13. 1745-6.

ALTHO' the microſcopical Objects, which I have the Honour to inform you of at preſent, have been already very commonly ſeen and obſerved by many of the Curious; yet I flatter myſelf the Obſervations I have had the Happineſs to make on them, and which you were pleaſed to be a Witneſs of, will be no leſs entertaining to the *Royal Society*, than extraordinary in the Event.

The Eels in ſour Paſte are the Animalcules in Queſtion; in which, Accident (which has often introduced amazing Diſcoveries) has opened the following Scene to me.

Examining one Day a Number of theſe Eels, and having a Mind to view a ſingle one, I placed the largeſt I could find in a ſmall Drop of Water, under the Microſcope; in doing of which I found I had wounded him in the Belly; a long ſlender Tube proceeded from the Wound, doubled in the Form of an Inteſtine, which I then took it for.

The next Day I communicated this to Mr. *Turbeville Needham*; and, having a Mind to ſee the *Viſcera*, as we then thought, he cut one in two, near the Middle; when, to our great Surprize, we found this Part had ſhot out from each of the divided Ends,

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and a Number of ſeeming *Ova* iſſued from them; but we ſoon found, that theſe were really live Eels, included in their proper Membranes, though of different Degrees of Maturity. Some mov'd but ſlowly their Head and Tail, others coil'd and uncoil'd themſelves pretty briskly; and indeed it was pleaſant to behold the moſt mature making many Efforts to diſengage themſelves from their inveloping Membranes, frequently varying their Poſition, being ſometimes ſpiral, then like a Figure of 8, till at laſt they were intirely at Liberty, and ſwam about like the Parent Eel.

By this it appears, that what I at firſt took for the Inteſtine, we now found to be the *Uterus*, which ſhews, in the large Eels, to be full of dark Spots, and are the young Eels. Theſe dark Spots are alſo obſerveable in the young ones, as ſoon as deliver'd from their Parent.

To be ſure of this Experiment, I repeated the Operation on Numbers of theſe Eels in Preſence of Dr. *Parſons*, and ſeveral other Gentlemen, and always found young ones; ſome ſo mature (*viz.* thoſe towards the Middle of the Parent) as to diſengage themſelves before I could get them under the Microſcope.

In cutting one of theſe Eels, I happen'd to divide a young one exactly in two; but, notwithſtanding the globular Appearances, as in the Parent, there iſſued nothing from the wounded Extremity of either Part; which muſt be owing to the Immaturity of the young ones.

From this it is plain, that theſe Eels are viviparous; and conſequently cannot favour the common Opinion among

among Naturaliſts, That all Kinds of Animalcules are produc'd by minute Eggs floating in the Air, and falling into the different *Matrices* and *Pabula*, that ſuſtain each Kind.

In order to arrive at ſome Knowledge of this, I have made ſome freſh Paſte, and have cover'd ſome with a Piece of Lawn, ſome with a Bladder, and expoſed the reſt as uſual. I have alſo made a Mixture of Flower and Water without boiling, and tied down ſome of that, and left the reſt open; whereby it may appear how far the Air may or may not be concern'd in the Conveying of theſe Animalcules: For there is no Mean to be imagin'd, by which theſe Creatures can get into the Paſte, if we do not ſuppoſe Nature has decreed two Ways for their Production, that is, from Eggs in the Air, beſides the Manner that appears before us: But this, together with the Reſult of ſome other Experiments, ſhall be humbly offer'd to your Conſideration, in a future Paper, by

SIR,

Your moſt obedient Servant,

J. Sherwood.

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